GEOGRAPHIC SCHOOL BULLETINS

THE NATIONAL GEOGRAPHIC SOCIETY, WASHINGTON 6, D.C.

VOLUME 37, NUMBER 20, MARCH 2, 1959 . . . *To Know This World, Its Life*

► New Ways Thaw Snow-Thatched Quebec
► Flowers That Bloom in the Spring
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TOBOGGANISTS start a 60-mile-an-hour ride toward Château Frontenac, whose turrets reveal Quebec's French heritage.

JOHN E. FLETCHER, NATIONAL GEOGRAPHIC STAFF

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names. Traffic signs warn motorists in both French and English.

This is also true throughout the entire Province of Quebec where more than four and a half million French Canadians make up almost one-third of Canada's population.

Twice the size of Texas, Canada's largest Province stretches over sugar beet and tobacco farms in the south, dense forests to the north, and subarctic tundra in the Far North.

It includes Canada's largest city, Montreal. Situated on the St. Lawrence 160 miles upriver from Quebec, Montreal serves as a principal gateway to the Atlantic, even though ice closes it for four months of the year.

From the backwaters of the Province pours a river of products: grain from the southern and eastern farms; asbestos (Quebec is the world's leading producer) from the Appalachians southeast of Montreal; iron, gold, aluminum, copper, and zinc from the north and east.

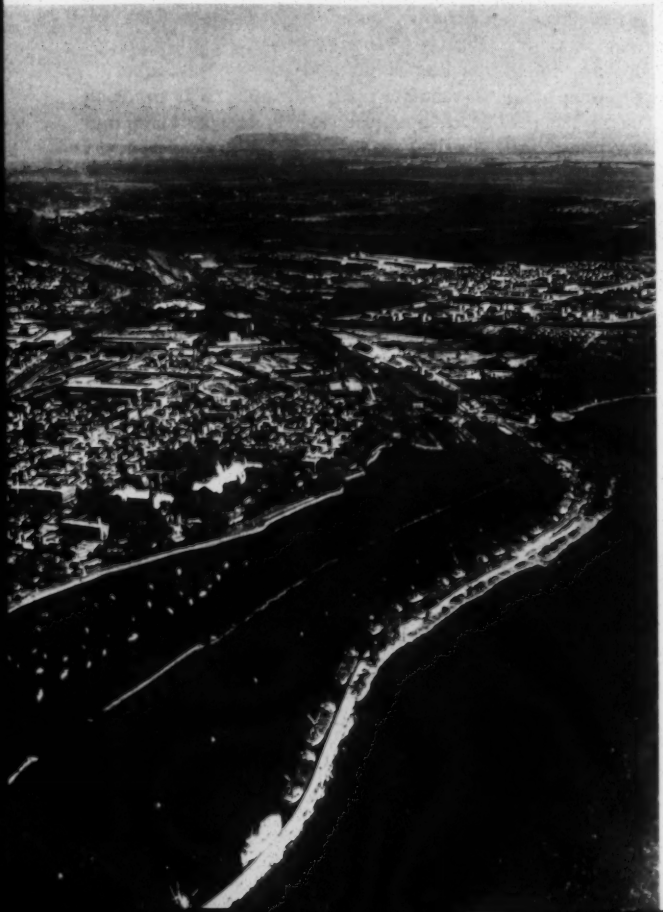
At one time most of the materials headed for North American and European manufacturing centers. But this system slowly died.

Conversion began with the opening of paper mills in the middle 1800's. Harnessing the rushing water in the Province's many rivers gave Quebec cheap and abundant power. Manufacturing mushroomed.

Lumber from northern forests supplies newsprint and furniture factories. Wool from the sheep-raising east feeds textile mills. Farm produce from the south and east goes into canneries.

Tobacco is processed in Montreal factories. The vast mineral resources of the

NATIONAL GEOGRAPHIC PHOTOGRAPHER ROBERT F. SISSON



**MONTREAL, a city of over one million people, began life as a frontier mission in 1642. Fur trade turned it into a commercial center. Today it thrives on foreign trade. Most of its people speak French; signs, as in Quebec, are in French and English. A thriving port, Montreal anticipates more trade after the St. Lawrence Seaway opens on June 26. At a cost of over one billion dollars, Canada and the United States dug channels, built locks, and bypassed rapids to provide a superhighway from the Atlantic to the Great Lakes. Formerly, the bigger ships docked at Montreal and transferred cargo to shallow-draft boats. Building the seaway and related power projects required four years work by 22,000 men and $70,000,000 worth of machines.**



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NATIONAL GEOGRAPHIC PHOTOGRAPHER KATHLEEN REVIS

# Fresh Currents Sweep Old Quebec

UNLIKE THE WOMAN who tries to hide her age, the city of Quebec, oldest in Canada, is proud of her 350 years.

Samuel de Champlain founded the colony for France in July, 1608. The only walled city left in North America, Quebec resembles European cities built centuries ago. Norman-styled buildings take the visitor mentally to old France.

Churches and chapels date from the 17th century. Horse-drawn vehicles—sleighs in winter, victorias in summer—clip-clop through the narrow cobblestone streets, showing tourists how *Québecois* used to live (above). In some rural areas of the Province, the horse is still one of the most common ways of getting around.

Strategically located at the junction of the St. Lawrence and St. Charles Rivers, Quebec city shows off her Citadel atop 350-foot-high Cape Diamond. Charles Dickens called it the "Gibraltar of America." Originally built by the city's French founders, the Citadel and surrounding fortifications were rebuilt by the British between 1823 and 1832. Old cannons measure off the walls.

Historians debate the source of the city's name. Some say it comes from Kébek, Algonquin Indian for narrowness, or strait, in reference to the narrowing of the St. Lawrence upstream from the city. Others say French explorers, awed by the cliffs, exclaimed: *Quel bec!*—"What a beak, what a promontory!" Whichever the source, French Canadians today pronounce it kay-BEK.

The fate of Canada was decided on the Plains of Abraham within the city. The victory of British forces over a French army there in 1759 won all of Canada for Britain. But the spirit of Quebec remained French. Most of the city's 171,000 population has French ancestry, speaks French, and lives on streets with French

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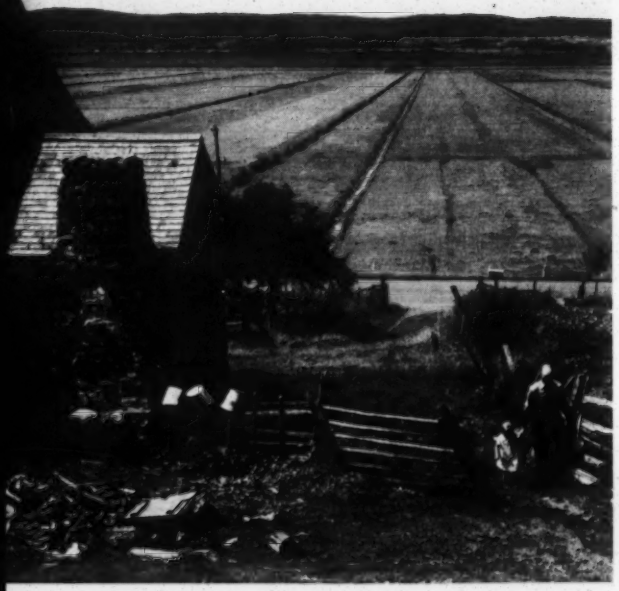

## Facts at a Glance

### Area

Province of Quebec . . . . . 594,860 sq. mi.
Canada . . . . . 3,851,113 sq. mi.

### Population (1956 Census)

Quebec City . . . . . 171,000
Province of Quebec . . . . . 4,628,378
Canada . . . . . 16,080,791

### Major Products, Quebec

Paper
Minerals: asbestos, iron, gold, aluminum, copper, zinc.
Chemicals, dairy products, grain, fish.

**See Also:** *National Geographic*—March 1959, "New St. Lawrence Seaway Opens the Great Lakes to the World" ($1); January 1958, "Winter Brings Carnival Time to Quebec" ($1); October 1949, "Quebec's Forests, Farms, and Frontiers" ($1); September 1950, "Sea to Lakes on the St. Lawrence" ($1); December 1953, "Ontario, Pivot of Canada's Power" ($1); August 1955, "Across Canada by Mackenzie's Track" ($1). **Map:** Canada, Alaska and Greenland ($1).

Ribbon farming (above) carries over from earlier days. As a defense against Indians and loneliness, settlers plowed long, narrow strips of land behind their houses. They could build their homes in rows, close to their neighbors, present a united front to intruders, and be within easy call as they worked the fields.

The eldest son still inherits the farm, but mechanization reduces the number of hands needed to run it. His younger brothers and sister leave for jobs in the cities. The bustle of mills, mines, and factories drowns out the quiet past. L. B.

SIGNS OF THE OLD TIMES survive in areas of Quebec Province which a century of industrialization has left untouched. Three centuries ago, God-fearing French settlers planted wayside crosses, such as the one at right, to mark religious meeting places before churches became numerous. Religion plays a leading role in the lives of *Québecois*, and many rural families continue to put up shrines on their land.



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PHOTOGRAPHS BY NATIONAL GEOGRAPHIC PHOTOGRAPHERS B. ANTHONY STEWART AND JOHN E. FLETCHER

Province make the city a manufacturer of railway rolling stock, electrical apparatus, sheet metal, castings, and forgings. Leather from Quebec cattle is turned into boots and shoes. Chemical industries boom in other cities of the Province.

Quebec's industrial position is largely the result of a spurt that followed World War II. Between 1947 and 1957, the Province tripled its over-all production.

In his search for a northwest passage to the Orient in the 16th century, Jacques Cartier came upon what is now Quebec. The Gaspé Peninsula section was so desolate he christened it "the land God gave to Cain."

Today schools of boats and forests of airing nets mark the peninsula as the fishery of the Province. Cold air and rocky soil make all but the most meager farming impossible. Cod is king here.

Custom locks these fishermen in the past. They net a bare living from the sea, as Gaspé fishermen have for three centuries. The work is hard and dangerous. When the fishing season ends, men turn to the forests to cut pulp wood.

They have been fishermen since the age of 10 or 12. Before that, they split cod for their fathers. Families often count a dozen children.

When the fisherman returns with the day's catch, his family meets him to haul the cod by dogcart (above), clean the catch, and stretch the nets.

Their home reflects the barrenness of their land. Houses are plain; dress is plain; life concentrates on work, family, and religious devotion.

Some of the homespun quality of the fisherman spills over on another old Quebec occupation: farming. It began when Louis Hébert planted ten acres of vegetables, Indian corn, vines, and apple trees outside the city of Quebec in 1617.

Today, farms concentrate in the area around Montreal, the townships east of the St. Lawrence, the Gaspé peninsula, and along the Ottawa River. Ontario and Quebec lead Canada's dairy production. Other sources of farm income are wheat, hay, barley, oats, vegetables, fruits, and hogs.

Although the Canadian government pushes mechanized farming and improved crops, and bright red tractors replace primitive plows in most sections, some rural farmers differ little from their ancestors of three centuries ago.

Ox-pulled plows are not yet extinct. The automobile has not completely replaced the horse and buggy.

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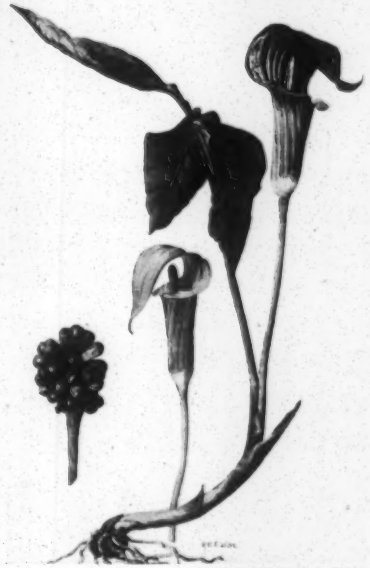
THE FEARLESS hepatica, above, often blooms under the snow. Lilac-white or pink blossoms crown leathery leaves. Smallest of the dogwoods, the bunchberry, below, ranges from West Virginia to California, and north to Alaska.

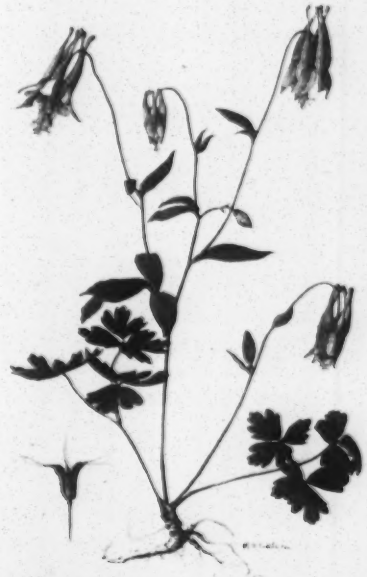
ELIOT F. PORTER



PAINTINGS BY MARY C. EATON

"BEWARE of jack-in-the-pulpit!" would be a good slogan for insects. Once inside the striped "pulpit" with its slippery sides they find it mighty hard to get out. Indians once boiled the root for food. Hence its other name, Indian turnip. Look for it in April, west to Minnesota and south to the Gulf of Mexico.

AMONG the most beautiful of all wild flowers is the American columbine, below. Its cornucopia-shaped flowers of scarlet and yellow have a wild grace that sets them apart from other woodland flowers. The columbine family has fifty members. They spread dots of beauty from the Atlantic to the Rockies.



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A FICKLE flower, the trillium. The white one, top, changes color as it grows older, to pink and deep purple. It spills down rocks like a lovely waterfall. Here it keeps company with the swamp buttercup, a deep yellow beauty.



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NATIONAL GEOGRAPHIC PHOTOGRAPHER JOSEPH BAYLOR ROBERTS

# Flowers That Bloom in Spring

LOOK UP and you'll see the sun shining higher in the sky. Look down and you'll find tiny spring wild flowers peeping out from under snow and soggy leaves. Walk the woods these next few weeks and you'll discover cascades of flowers spilling over ravines, drifting along the roads, and quietly flooding the forest floor.

Earth is waking up. Ocean tides are rising, and constellations change the look of the night sky. Rays of the tall sun splash 'round sleeping roots, pushing sap through stem and leaf. Fuzzy buds burst, their blooms rising with the flood of spring through valleys, up hills, reaching for the mountain tops.

Deep in the woodlands, flowers hurry to bloom while the trees are bare and the sun is strong, as in the Blue Ridge Mountain dell at left. In late April blooming will be at its peak. By mid-May leaves will shut off light and many flowers will disappear.

The first spring wild flowers are pale in color—white and pink and lavender, later deep, rich yellows. The colors unfold with mounting richness until the fall blossoms reach brilliant hues.

More species of wild flowers grow in North America than any other part of the world. These pictures form a guide to favorite blossoms of wood and swamp and highland. K. C.

PAINTING BY J. M. SHYLL

THE PILGRIMS called it the Mayflower—
this delicate, pale pink blossom
that proclaims the dawn
of spring over much of North America.
As March snows sink into the earth,
the trailing arbutus
creeps across woodland floors.
Overpicking has made it rare.

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Godless Communism must come hard to a priest-ruled country like Tibet, where one-fifth of the population lived in monasteries, or, as the Tibetans call them, lamaseries. Before the Communists arrived, the Dalai Lama (below) wielded a pope's power over spiritual affairs and a king's power over temporal matters.

He is believed to be a rebirth of Chenrezi, patron god of Tibet. He is the 14th of his line, each honored as an incarnation of the last.

After the 13th Dalai Lama died, the State Oracle, always called on in times of crisis, told where to look for his successor. Monks found him in the neighboring Chinese province of Tsinghai. To try him, they presented several objects. Then a two-year-old boy, he reached for those which had belonged to the old Dalai Lama. He was proclaimed the Lama. An elder ruled until the holy boy was old enough to take charge.

In addition to a consuming religion, Communist troops also found a nation so primitive that the only wheel in daily use was the prayer wheel. Almost no one had an automobile, bicycle, even a wheelbarrow.

Tibetans carry on a vigorous trade by mule-trains which grope their way to India through precarious mountain passes. Yak wool goes down. Cotton cloth, sugar, mustard oil, and oranges come back up. When the invaders struck, agricultural methods resembled those of the Middle Ages. The farmer used a wooden plow pulled by a dzo, a cross between the ox and yak. His crop was—and is—the staple of diet: barley. He drinks a mixture of tea, yak butter, and salt.

Nomadic herdsmen, living in tents of yak hair, people the remote wastes, their cattle and sheep munching sparse patches of grass. Villages and towns are small and scarce.

Tibet is potentially rich in minerals—salt, soda, potash, borax, iron, coal, lead, zinc, manganese, and possibly uranium. Gold runs down every river. However, the Tibetan never mines it if he can help it. He is afraid of angering the earth gods. Instead, he pans grains of gold from streams or scratches a little from the surface of the ground with gazelle horns to make temple decorations. (continued)

DUNGKHAR MONASTERY, Chumbi: The Dalai Lama, surrounded by nobles and monks, receives the holiest relic of Tibet's religion: a gold-encased bone. The bone is believed by Tibetans to be that of Gautama Buddha, founder of Buddhism on which Tibetan religion is based. The Dalai Lama visited Dungkhar on his flight from Lhasa when the Chinese crossed the border into Tibet in 1950. He later returned to his country.

HEINRICH HARRER took the pictures on these pages. An Austrian interned in India during World War II, he escaped by the route shown on map above to Tibet, where he became the friend and tutor of the Dalai Lama.



UMI

# Tibet . . . Land of Lamas Resists Communism

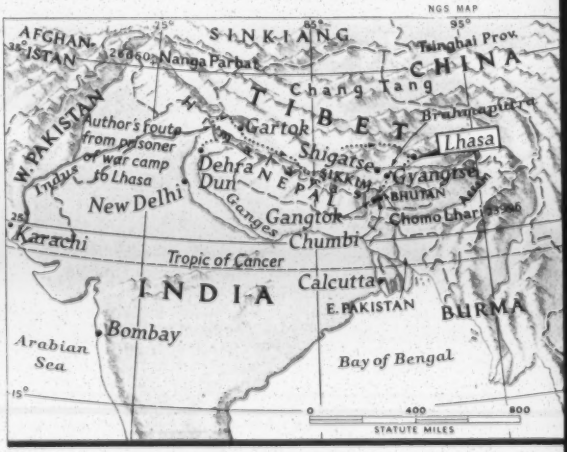
Mother and child pray at a pilgrim shrine near the golden-roofed Potala, Tibet's Vatican. Wind-shredded prayer flags hang on tree branches and incense smolders to add weight to their words.

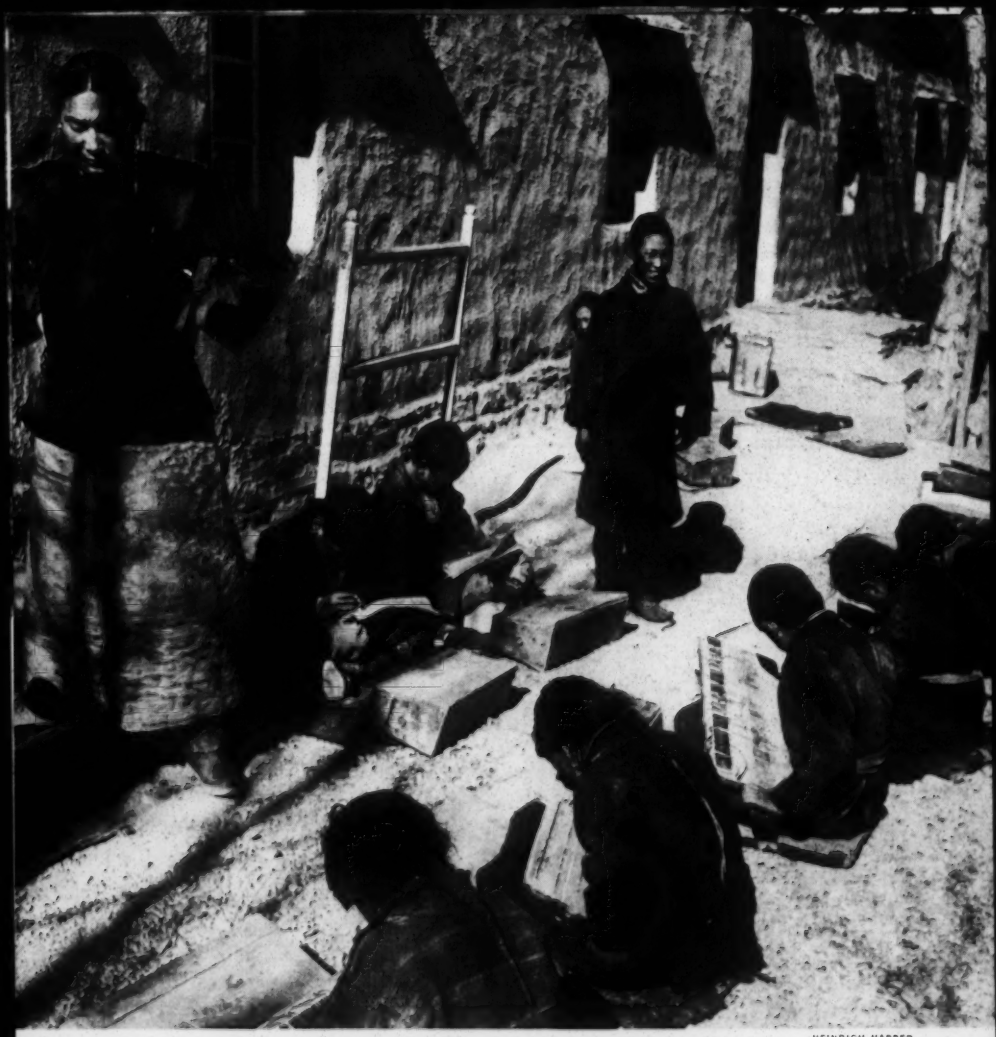
Religion is the life force in Tibet, a secluded Asian land seldom visited by Westerners. Prayer flags fly from every house top. Tibetans believe their flapping sends prayers toward the gods. Every home has a prayer wheel stuffed with written supplications to the gods. No one dares pass without rotating it to spin out more prayers. Other prayer wheels are placed in streams to be turned by flowing water.

These are the devout people the Chinese Communists found when they invaded Tibet in 1950. Although the Bamboo Curtain today screens Tibet from the West, there are rumors that perhaps the Chinese bit off more than they can chew. For as long as history remembers, Tibetans have lived in their own way, ignoring the rest of the world.

Nature put up the first barriers. The country lies cloud-high on a 16,000-foot plateau. Mountains up to 29,000 feet high separate it from China proper. The Himalayas, highest range in the world, rears between Tibet and India.

Distrustful of foreigners, Tibetans added to their country's inaccessibility. They welcomed no visitors. They were forbidden to help a traveler unless he had written permission to be there. Few could get permission. Lhasa, the capital, earned the nickname "The Forbidden City."





HEINRICH HARRER

**Tibetan students learn their A B C's in the open air, writing on planks**

Although in Lhasa two public schools were operated, one for monastic novices and one for government officials, the nation had no public school system. Noblemen hired tutors for their children and the children of their servants. Teaching methods were primitive. The youngsters above learn the three R's writing with homemade bamboo pens.

But the Communists say they are changing Tibet. Peiping issues statements that, under Chinese leadership, roads are being built and irrigation projects finished. Mines, the invaders claim, are being dug. They say they are building hospitals and factories and that electricity—not yak butter lamps—now lights Tibetan homes.

But however glowing the reports from Peiping, other stories trickle down the trade routes.

They tell of unrest and intermittent rebellion against the Chinese "liberators." The Chinese have been forced to backtrack in some of their demands on Tibetans. The future of this long-forbidden country remains in doubt. L. B.



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